

First, Applicant notes, with appreciation, that claims 21, 22, 27-29, 33-43, 46, 48, 49 and 51-59 have been allowed. In addition, the Examiner has indicated that claims 2, 4, 5, 7, 13-15 and 17-20 are directed to allowable subject matter and would be allowed if amended so as not to depend from a rejected claim. Allowable Claim 2 has been incorporated in claim 1. Thus, formal allowance of these claims is now respectfully requested.

With respect to the amendment of claim 1, Applicant notes that original claim 1 provides a particular benefit when the cyclic structure of the planar light guiding body and the repeating direction are tilted. Thus, claim has been amended to expressly include this feature as originally stated in claim 2.

For convenience of the Examiner, Applicant notes that new independent claim 61 corresponds of claim 4, independent claim 64 corresponds to claim 13, independent claim 65 corresponds to claim 14, independent claim 67 corresponds to claim 17, independent claim 69 corresponds to claim 19, independent claim 70 corresponds to claim 20 and independent claim 71 corresponds to claim 52. Thus, all of these new independent claims, as well as the new corresponding dependent claims are believed to be in condition for allowance.

Claim 24 has been rejected under 35 USC 103(a) as allegedly being obvious over Yoshito in view of Takeshi. For at least the reasons set forth below, Applicant respectfully submits that this claim is not rendered obvious by the cited references.

An example illustrating features of claim 24 is shown in Figure 24. Specifically, in pending Claim 24, the planar light guiding body 254 comprises the light incident surface 254a and the (opposing) end surface 254g opposing to the light incident surface 254a, the (opposing) end surface 254g including the light source 251, and the light incident surface 254a including the converting means such as the diffusing and reflecting sheet 253 or the reflecting plate 273 (see Figure 26(a)). With this arrangement, the light from the light source 251 is converted into the linearly emitting state by using the converting means 253 or 273, so as to reenter, from the light incident surface 254a to the planar light guiding body 254, the light converted into the linearly emitting state. In this way, the light in the linearly emitting state is converted into a planarly emitting state by using the planar light guiding body 254.

In this arrangement, even if a dot light emitting source is used as the light source 251, the light from the light source 251 is sufficiently spread before reaching the converting means 253 or 273. Because of this, the converting means 253 or 273 can convert the light from the light source 251 into light that is more perfectly spread, and reenter the thus converted light into the planar light guiding body 254. As a result, it is possible to efficiently uniformize the luminance distribution of the light outgoing from the light outgoing surface 254b of the planar light guiding body 254.

In contrast, Takeshi discloses, in its English Abstract for example, a planar light source device comprising the reflecting plate 29 under the light transmitting part 26, and the diffusing plate 30 above the light transmitting part 26, so that the light from the light

emitting element 23 imbedded in the light transmitting part 26 is reflected by the reflecting plate 29, and diffused by the diffusing plate 30 so as to emit the light from the side that is near the diffusing plate 30. With this arrangement, the light from the light emitting element 23 is converted into the planarly emitting state by using the reflecting plate 29, and diffused by using the diffusing plate 30. Thus, the arrangement of Takeshi is entirely different from the arrangement of Claim 24 in which the light source 251 and the converting means 253 or 273 are respectively provided at the end surfaces of the planar light guiding body 254, and the light from the light source 251 is converted into the linearly emitting state first and then converted into the planarly emitting state by the planar light guiding body 254. Thus, even if Takeshi and Yoshito were combined, the combination does not teach or suggest the claimed invention. Thus, reconsideration and withdrawal of this rejection are respectfully requested.

Claim 31 has been rejected under 35 USC 103(a) as allegedly being obvious over Yoshito in view of Tomohiro. For at least the following reasons, Applicant respectfully submits that this claim is not rendered obvious by the cited references.

Tomohiro discloses the light adjusting sheet for adjusting the outgoing direction of the light from the planar lighting device. The light adjusting sheet is a sheet on a surface of which convex and concave streaks are straightly arranged. Further, Tomohiro discloses an arrangement in which the angle between (i) the convex and concave streaks and (ii) the pitch line of the liquid crystal is set within the range of $5^{\circ} \leq \theta \leq 85^{\circ}$, in order to prevent moiré fringes (page 7, lines 22-34). Here, the object of the Tomohiro is to

prevent the moiré fringes in the back light. The combination of the back light and the transmissive liquid crystal display apparatus is difficult to apply to the combination of the front light and reflective liquid crystal display apparatus. This is because, in the combination of the transmissive liquid crystal display apparatus and a lighting device as the back light, the light passes through (i) the pixel pattern of the transmissive liquid crystal display apparatus and then (ii) the cyclic structure formed on the light guiding body. The two factors interfere with each other, thereby causing the moiré fringes. As to the degrees of freedom in design to prevent the occurrence of the moiré fringes, there are two types of degrees of freedom, namely: the degree of freedom in designing the cyclic structure formed on the light guiding body; and the degree of freedom in the pixel pattern of the transmissive liquid crystal display apparatus.

In contrast, the reflective liquid crystal display apparatus performs display by using the reflecting plate to reflect the light from the lighting device. Thus, when the lighting device as the front light is used in the reflective liquid crystal display apparatus, the light from the lighting device causes interference in the cyclic structure formed on the light guiding body, the pixel pattern of the reflective liquid crystal display apparatus, and again the cyclic structure, in this order, thereby causing moiré fringes. In short, the three factors interfere with each other, thereby causing moiré fringes. However, there are only two types of degrees of freedom, namely: the degree of freedom in designing the cyclic structure formed on the light guiding body; and the degree of freedom in the pixel pattern of the reflective liquid crystal display apparatus.

As described above, the reflective liquid crystal display apparatus having the lighting device as the front light is different from the transmissive liquid crystal display apparatus having the light device as the back light, in terms of how the moiré fringes occur. Thus, the design of the cyclic structure for the prevention of the moiré fringe in the back light cannot be adopted in the front light. Accordingly, the arrangement of Tomohiro cannot be simply adopted in the reflective liquid crystal display apparatus having the front light. Moreover, Tomohiro and the present invention have different preferable angle ranges. Thus, Applicant respectfully submits that the cited references do not render the claimed invention obvious. Accordingly, reconsideration and withdrawal of this rejection are also respectfully requested.

In view of the foregoing amendments and remarks, all of the pending claims are believed to be in condition for allowance. Thus, withdrawal of the rejections and passage of this case to issuance at an early date are earnestly solicited.


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Should the Examiner have any questions regarding this response, or believed that any further issues need to be addressed prior to allowance. The Examiner is invited to call the undersigned attorney at the phone number below.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____


Joseph S. Presta
Reg. No. 35,329

JSP:mg
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100